IN THE CLAIMS:

1. (Currently Amended) A ~~uniaxial drive unit using a linear motor~~ surface shape measuring apparatus, comprising:

a measurement bed in which an object under test is set on;

a column which is vertically erected on the measurement bed;

a base plate which is vertically movable along the column;

a drive unit which moves the base plate vertically along the column;

a linear motor which includes a fixed part which is a rod-shaped magnet fixed to a ~~unit body~~ the base plate transversely and formed so that the N poles and the S poles are arranged alternately, and a moving part which is a ring-shaped member having a coil member, fitted on said fixed part, and capable of moving along said fixed part,

a linear motion guide which is provided parallel to the base plate;

a driving section which is ~~driven by driving force of said linear motor, the driving section being~~ slidable in the transverse ~~uniaxial~~ direction along the linear motion guide, ~~with respect to said unit body;~~

a winding motion transmission support member which is provided near ends of the linear motor;

a winding motion transmission member, which is wound around the winding motion transmission support member, that connects the driving section to the moving part or a member fixed to the moving part and thereby transmits driving force of said linear motor to said driving section; and

a detecting section which is fixed to the driving section,

wherein the surface shape measuring apparatus measures a surface shape of an object under test by relatively moving the detecting section provided on the measurement bed along the surface of the object under test.

~~a winding motion transmitting support member which supports said winding motion transmission member, the winding motion transmitting support member being provided near one end or both ends of said unit body, wherein~~

~~said driving section is connected to said moving part or a member fixed to said moving part by said winding motion transmission member via said winding motion transmitting support member~~.

2. (Currently Amended) The surface shape measuring apparatus ~~uniaxial drive unit~~ according to claim 7 [[1]], further comprising a balance weight fixed to said moving part so as to balance with said driving section.

3. (Currently Amended) The surface shape measuring apparatus ~~uniaxial drive unit~~ according to claim 2, wherein the total weight of said balance weight and said moving part is approximately equal to the weight of said driving section.

4. (Currently Amended) The surface shape measuring apparatus ~~uniaxial drive unit~~ according to claim 2, wherein the total weight of said balance weight and said moving part is in the range of 20% up and down with respect to the weight of said driving section.

5. (Currently Amended) The surface shape measuring apparatus ~~uniaxial drive unit~~ according to claim 7 [[1]], wherein the end of said winding motion transmission member is fixed to said driving section in substantially the same plane as the slide face between said unit body and said driving section.

6. (Canceled)

7. (New) The surface shape measuring apparatus according to claim 1, wherein the surface shape measuring apparatus measures a surface roughness of the object under test.

8. (New) A surface shape measuring apparatus, comprising:

a unit body having ends;

a work table in which an object under test is set on, and rotatably provided in the unit body;

a rotational driving device which rotates the work table;

a linear motor which includes a fixed part which is a rod-shaped magnet fixed to a unit body vertically and formed so that the N poles and the S poles are arranged alternately, and a moving part which is a ring-shaped member having a coil member, fitted on the fixed part, and capable of moving along the fixed part;

a guide shaft which is provided vertical to the unit body;

a driving section which is vertically slidable along the guide shaft;

a winding motion transmission support member which is provided near an upper end or both ends of the unit body;

a winding motion transmission member, which is wound around the winding motion transmission support member, that connects the driving section to the moving part or a member fixed to the moving part and thereby transmits driving force of the linear motor to the driving section;

a measurement stage which is vertically fixed on the driving section;

a horizontal arm which is provided so as to be movable in a transverse direction with respect to the measurement stage;

a detecting section which is fixed to the horizontal arm,

wherein the surface shape measuring apparatus measures a surface shape of an object under test by relatively moving the detecting section provided on the measurement bed along the surface of the object under test.

9. (New) The surface shape measuring apparatus according to claim 8, wherein the surface shape measuring apparatus is a roundness measuring apparatus for measuring the roundness of an object under test.

10. (New) The surface shape measuring apparatus according to claim 9, wherein a balance weight is fixed to the moving part so as to balance with the driving section.

11. (New) The surface shape measuring apparatus according to claim 10, wherein the total weight of the balance weight and the moving part is approximately equal to the weight of the driving section.

12. (New) The surface shape measuring apparatus according to claim 10, wherein the total weight of the balance weight and the moving part is in the range of 20% up and down with respect to the weight of the driving section.

13. (New) The surface shape measuring apparatus according to claim 9, wherein an end of the winding motion transmission member is fixed to the driving section in substantially the same plane as a slide face between the unit body and the driving section.